H1004
H4AR
12.3.1
5/29/09

EPA Tier 1 Comments - Draft EW Subsurface Sediment QAPP

Ravi Sanga to: Susan McGroddy, twang@anchorenv.com, Doug Hotchkiss 05/29/2009 03:50 PM
Leslie McKee, Kym Takasaki, dan berlin, "Dave Schuchardt
Cc: (Dave.Schuchardt@Seattle.Gov)", "Debra Williston (b) (6))",
"Debra Williston (debra.williston@kingcounty.gov)", Gary Pascoe, "Jeff Stern

Doug, Tom and Susie -- Attached are EPAs first tier of comments on the Draft Quality Assurance Project Plan for Subsurface Sediment Sampling for Chemical Analysis in the East Waterway. As discussed earlier, these comments are based on agency review. The second tier of EPA comments that will be sent out following our meeting on June 8th will include additional comments based on Stakeholder concerns.

Any questions, please give me a call.

Thanks

Ravi

2009May 29_EW SubSurface Sediment QAPP Comments.doc

2009May29_EW Subsurface Cores_South.pdf

2009May29_EW Subsurface Cores_North.pdf

2009May29_EPA Decision SubSurf Cores.doc

Ravi Sanga, MS
Environmental Scientist - Remedial Project Manager
US EPA Region 10
Office of Environmental Cleanup
phone: (206) 553-4092
fax: (206) 553-0124

EPA Comments – East Waterway Subsurface Sediment QAPP (04/17/2009 Draft)

Comment No.	Page No.	Section No.	Comment
1	TOC		Add Appendix G to the table of contents
2	5	2.1.3	Change "The QA/QC coordinators will ensure that samples are collected and documented appropriately…" to "The Windward QA/QC manager will ensure that samples are collected and documented appropriately…"
3	9	Table 2-1	The table indicates that no material associated with either the T-30 sediment characterization or the Pier 36 characterization was dredged. This is not accurate. Please verify and correct the table as appropriate.
4	11	2.6.1	Please describe how the elevation of each station sampled with the MudMole will be determined.
5	15	2.6.4	Regarding the phrase "A draft data report will be submitted to EPA (date TBD)", section 2.3 states that this will occur 8 weeks following receipt of validated data, which will be provided 5 weeks after analysis, which will occur 3 weeks after collection. Please include a discussion of when EPA can expect to receive the draft validation report and the draft data report.
6	15	2.6.4	The last bullet states that the data report will include "Results from the analysis of field samples…" Results for field QC samples must also be included and discussed in the data report; it is not clear whether these will be included, please add clarification.
7	17	3.1.1	Last bullet: Preliminary post dredge surface sediment data shows surface contamination. Subsurface sediment cores will be necessary to measure the nature and extent of contamination in this area. Please add language that this will happen.
8	17	3.1.1	Last bullet: "Other considerations" should also include potential groundwater sources.
9	17	3.1.1	Last paragraph: Please explain why "As many as 10 additional locations may be selected for subsurface sampling." Please provide a rationale for why this number is appropriate.
10	18	Table 3-1	Please include a column to summarize the anticipated depth to native material. Also include if the core is being collected to try to establish bottom of contamination in areas where cores had previously not done this.
11	23	3.1.1	Text currently reads as if the core will not be advanced into native, which EPA does not agree with. There is not sufficient data to confirm that native is "clean", so information must be collected to support this. Please describe how deep into the native layer cores will be driven. The historic dredged surface may be contaminated, so it would be helpful to understand how much of this old surface may be archived for potential analysis.
12	25	3.1.2	It is not clear why cores in Slip 27 are proposed for the Method B sampling method. It is unlikely that MNR can be supported in this area. Please state this and add rationale regarding the proposed cores in Slip 27.
13	27	3.1.2	Please change the following sentence to read: "The selection of archived samples for additional analyses will be determined in consultation with EPA *with consultation from stakeholders* based on preliminary, unvalidated data."
14	28	3.1.2	Text currently reads as if samples will not be analyzed in native sediment. There is not sufficient data to confirm that native is "clean," so information must be collected to support this. Please state this in this section.

EPA Comments – East Waterway Subsurface Sediment QAPP (04/17/2009 Draft)

Comment No.	Page No.	Section No.	Comment
15	28	3.1.2	First paragraph: "... core will be divided into two 2-ft sections..." Please delete the "two", given the potential for more than two sections if the core is greater than 10 ft.
16	28	3.1.2	Please revise the following 2 sentences as follows: "These archived samples may be analyzed for a subset of the chemicals analyzed in the 0-to-2-ft and 2-to-4-ft core sections, based on decisions by EPA with stakeholder input as appropriate. The specific chemicals to be analyzed in the 0.5-ft intervals will be decided by EPA and the EWG in consultation with stakeholders, based on the preliminary, unvalidated chemistry results in the 0-to-2-ft and 2-to-4-ft intervals.
17	28	3.1.2	A generously-sized sample jar is indicated for each geotechnical test and combination of chemical analyses in Table 1 of Appendix E and Table 3-4 of the main text. Given sample mass limitations, the most efficient combination of jars must be determined in consultation with ARI, based on actual sample mass requirements for testing with consideration to any procedural requirements at ARI and need for archiving. Samples for geotechnical tests must be protected from chemical contamination so that sediment remaining after geotechnical testing (particularly for grain size) can be used for chemical analysis, if necessary. This process includes the use of precleaned glass jars to contain the samples and decontaminated utensils to subsample for testing. Please add language stating that this procedure and process will be followed.
18	29	3.1.3	Please explain why these cores have been selected (specifically SC13 and 18). Also, please include locations at SC17 (to obtain information in an area likely to require remedial action) and SC 38 or 41.
19	29	3.1.3	Please include a figure to illustrate the core locations described in this section.
20	30	3.2.2	A better method is required to determine the elevation of intertidal subsurface cores. Please evaluate the application of differential GPS or consider using a surveyor to measure these elevations.
21	33	3.2.3.3	Last paragraph: Please revise the text to state that if cores need to be cut, the cut will occur at one of the 2 ft intervals defined for analysis/archiving.
22	33	3.2.3.3	During transportation, cores must be maintained in an upright position as much as possible. Please revise text to reflect this.
23	33	3.2.4	2nd paragraph: Please correct the typo (2 periods at the end of the first sentence).
24	33	3.2.4	Since hollow stem augur (HAS) will be used for the geotechnical samples after the initial subsurface coring please explain how it will be determined that another core will be collected if native sediment is not reached. Explain if timing will allow for consideration of draft chemistry results. Without this, consultation with EPA on determining "native" sediment will be required.
25	33	3.2.4	Please state whether cores will be processed at ARI by Windward staff or ARI staff.
26	34	3.2.4	2nd paragraph: Please correct the typo in the first sentence.
27	34	3.2.4	Please add language regarding the relevance of native sediment being reached or remove this language. Native sediment cannot be assumed to be clean. More information will be needed before this can be decided.

EPA Comments – East Waterway Subsurface Sediment QAPP (04/17/2009 Draft)

Comment No.	Page No.	Section No.	Comment
28	34	3.2.4	Third paragraph. Please add rationale regarding using the difference in stratigraphic units as being the decision criteria for whether a sample will be collected at the fixed 2-ft interval.
29	35	3.2.4	Last paragraph. Please state how the bottom of the sand layer will be determined and how silt deposition will be addressed with this determination.
30	36	3.2.6	First sentence of this section, pleased change "using" to "used". Please also change the following sentence to read "Any sampling equipment that cannot be cleaned to the satisfaction of the FC *and EPA (if present)* will not be used for further sampling activities."
31	37	3.2.7	Please briefly explain the "appropriate manner" for disposal of waste by ARI.
32	36	3.3	The existing discussion in this section requires further clarification. Please supplement this section with a summary of what will occur at each stage of the chain of custody. Please begin when the sample is collected from the waterway and end when the sample is processed at the lab.
33	36	3.3	The text of this section is not always applicable to the core transport and processing procedures described for this study. For example, the first paragraph in Section 3.3.2 states," Custody procedures will be initiated during sediment sample collection", but apparently custody procedures will also be initiated for the cores (first full paragraph on page 38). The next statement, "A COC form will accompany samples to the analytical laboratory", must also include cores. Please revise this section for accuracy and clarity.
34	38	3.3.3	It appears that the sediment samples may not be transferred to ARI sample receiving staff at a temperature of 0-6 degrees C, since the cores will be processed shortly before the samples are transferred. If this is the case, please state in the QAPP that this situation will be documented on the sample login sheets at ARI to prevent unnecessary confusion or data qualification at EcoChem when the login sheets are reviewed by EcoChem and any other parties. Presumably samples will be refrigerated at ARI from the time of receipt until login, and refrigerated or frozen immediately after login, as applicable. Please add language to confirm this; also explain whether samples will be stored on ice until they are handed over to ARI, or if they will they go straight into ARI's refrigerator.
35	39	Table 3-6	Please provide the list of grain size intervals to be determined.
36	41	Table 3-7	The control limits used by the lab and for data validation must not be more lenient than control limits provided in the cited method. For example, the control limit for CCVs for method 8082A is 20% difference; this control limit should be used by ARI. A control limit of 25% is stated in Table 3-7. Please revise control limits as applicable to be consistent with the cited methods or to be more conservative.
37	41	Table 3-7	Please provide EPA with ARI's current in-house control limits for spike recovery and any other QC results that will be validated according to ARI control limits. Add these in house control limits to the QAPP.

EPA Comments – East Waterway Subsurface Sediment QAPP (04/17/2009 Draft)

Comment No.	Page No.	Section No.	Comment
38	43	3.4.2.6	An estimated detection limit (DL) is described in the QAPP for Analytical Perspectives. Sample-specific DLs are generally reported for dioxin/furan analyses. This is based on the signal-to-noise ratio in each sample and represents the lowest reliable detection limit for HRGC/HRMS methods. Please explain if sample-specific DLs will be reported by Analytical Perspectives.
39	43	3.4.2.6	Please state whether non-detects will be reported at the RL or MDL.
40	45	Table 3-8	An OPR (ongoing precision and recovery) standard is analyzed with each batch for dioxins/furans. This functions as an LCS and must be reflected in the entry under Laboratory Control Sample for dioxins/furans.
41	47	3.5.2.2	Section on *Interference Check Samples*. The results of the review of PCB interference in pesticide analyses must be summarized in the QA/QC summary section of the data report.
42	49	3.7	No discussion is provided of non-direct measurements (QAPP element B9), please add this information. Please also explain that historical data will be used to evaluate the nature and extent of contamination in East Waterway. Also cite that the report where the data quality criteria and procedures for determining the quality of the data are described.
43	50	4.1.1	EPA review will consist of more than "QA systems" and equipment. Please note that EPA will also review sampling procedures and adherence to the QAPP. Please add language in this section that reflects this.
44	51	5.1	The reference to method 1668 validation guidance (EPA 1995) is not applicable, please revise.
45	51	5.1	All pesticide chromatograms must be reviewed for PCB interference, as indicated in Section 3.5.2.2 under *Interference Check Samples.*
46	51	5.1	Please see the attached description of data validation levels and cite as applicable in Section 5.1.
47	51	5.1	Please edit the last sentence in the first paragraph following the bullets as follows: "The EPA PM will have EPA peer review the third-party validation or if necessary, perform data assessment/validation on a percentage of the data." Please also add at the end of this section when EPA will receive the data validation report.
48	53	5.2	The usability of qualified data depends on a variety of factors. As a simple example, a low-biased chemical concentration may not be useful to determine whether or not a sediment sample meets screening criteria. The data user is in the best position to provide a context-specific evaluation of the impact of qualified data on its use, most likely in coordination with the QA/QC coordinator. Please revise this section to reflect this.

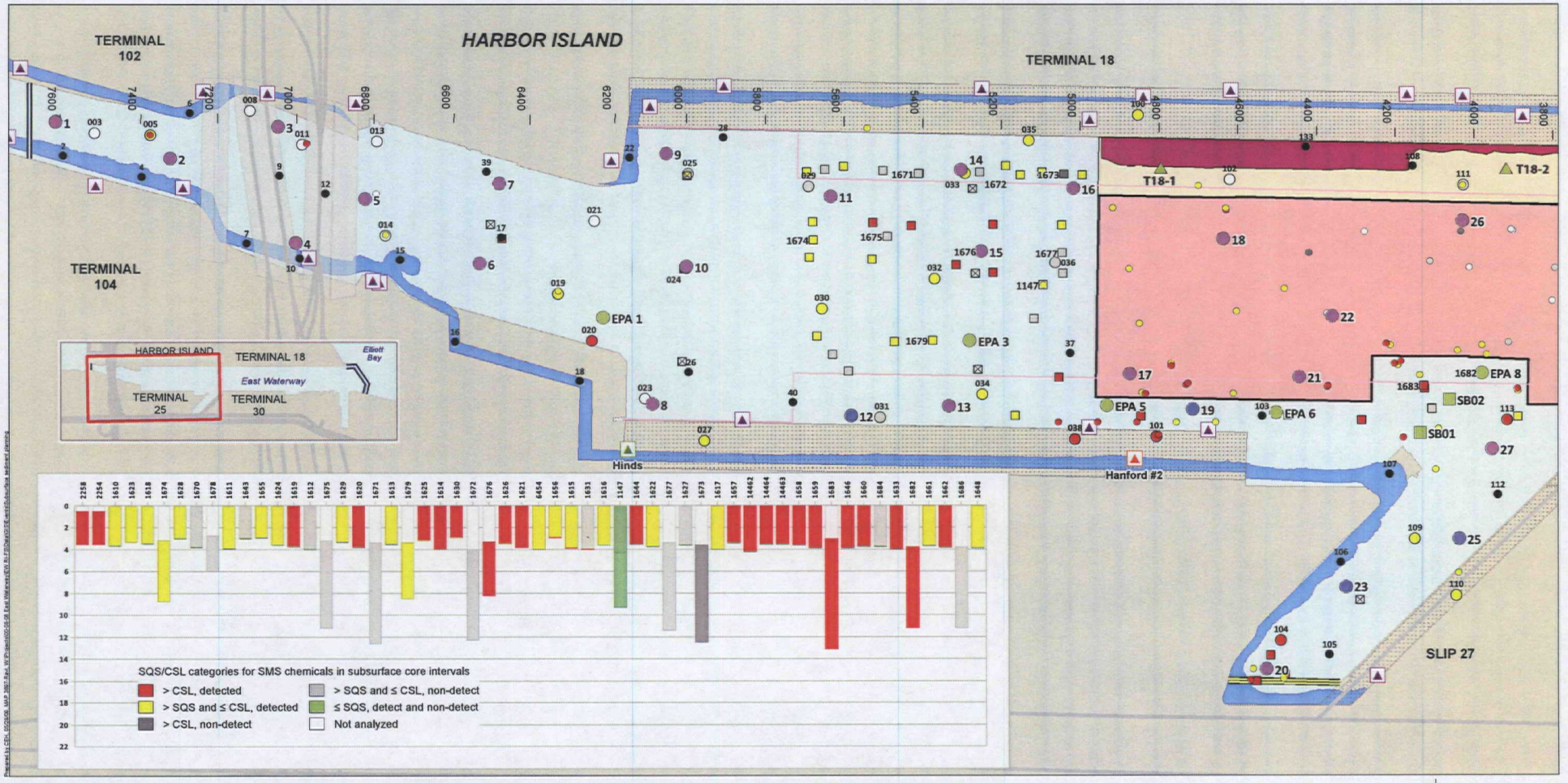
EPA Comments – East Waterway Subsurface Sediment QAPP (04/17/2009 Draft)

Comment No.	Page No.	Section No.	Comment
49	Appendix E	3.3.1	A generously-sized sample jar is indicated for each geotechnical test and combination of chemical analyses in Table 1 of Appendix E and Table 3-4 of the main text. Given sample mass limitations, the most efficient combination of jars must be determined in consultation with ARI, based on actual sample mass requirements for testing with consideration to any procedural requirements at ARI and need for archiving. Samples for geotechnical tests must be protected from chemical contamination so that sediment remaining after geotechnical testing (particularly for grain size) can be used for chemical analysis, if necessary. This process includes the use of precleaned glass jars to contain the samples and decontaminated utensils to subsample for testing. Please add language stating that this procedure and process will be followed.
50	Appendix E	3.4	Please provide the list of grain size intervals to be determined.
51	Appendix F	Core logs	EPA has reviewed the core logs referenced in this document as provided on the website. Not all logs were posted and some were posted but are not legible (e.g., Windward cores). Since there are not many logs used in this analysis, please include the available logs in this Appendix. Referencing which logs were used and why these logs would be helpful (since not all cores were used).
52	Appendix F	Figure 1	This figure should be revised to show the estimated dredge prisms for historical dredging (referenced on page 5 of text). In addition, cores should be labeled with sample ID (using event nomenclature) so that core logs can more easily be assigned to the location.
53	Appendix F, page 6	5	Text does not mention the deep samples likely required outside of Slip 27. Please add.
54	Map 2-2	Map 2-2	Please include identification for historic samples extending to 8 ft or deeper in order to easily identify on the map which historical cores had contamination below 8 feet.
55	Map 2-2	Map 2-2	Please revise Maps 2-2 a and b so that they are presented at the same scale.
56	Map 2-2	Map 2-2 (a&b)	Please revise the Maps to include all EPA additional cores as depicted on the attached figures and table.
57	Maps	Maps	Please include a map of current bathymetry at the same scale as Maps 2-2a and b.
58	Maps	Maps	Please add the geotech locations to the subsurface sediment sampling location maps.

Rationale for revisions to subsurface sediment core locations (Maps 2-2a and 2-2b)

Sample	Rationale
EPA 1	Investigate potential vertical extent of contamination outside of surface sediment CSL exceedance (020). Inform on conditions at T25. Location could be modified based on results from Round 2 surface locations 16 and 18
1674	No new core required to investigate depth of SQS exceedance below previous 8 foot core (1674). EPA will assume contamination extends to deepest historical depth.
12	Proposed EWG location was moved closer to pier face to investigate depth of contamination near previous SQS exceedances.
EPA 3	Investigate depth of contamination below previous CSL exceedance.
EPA 5	New core to delineate extent of Hanford footprint.
19	Original EWG location moved south to delineate extent of Hanford footprint.
EPA 6	New core to delineate extent of Hanford footprint.
24	Not needed because chemistry will be collected with geotech core SB02.
EPA 8	Investigate depth of contamination below previous CSL exceedance. This area is closer to the Phase 1 removal area than proposed geotech core SB02 (and former EWG proposed subsurface location 24), and the vertical profile may be different. Locate near former sampling locations 1633 and 1682.
23	Original EWG Location was moved south.
25	Original EWG Location was moved north.
T18-1	Pending Round 2 surface sediment results, additional core may be needed near the pier face of T-18 between roughly 3800 and 4800.
T18-2	Pending Round 2 surface sediment results, additional core may be needed near the pier face of T-18 between roughly 3800 and 4800.
EPA 9	Investigate depth of contamination below previous CSL exceedance. Area not previously dredged.
EPA 10	New core to characterize T-30 area and delineate extent of Lander footprint. Shorter core may be collected, but EPA requires full delineation of depth of contamination. EPA does not assume that native material is clean.
30	Original EWG Location was moved closer to previous CSL exceedance (116) to investigate depth of contamination.
EPA 11	New core to characterize T-30 area and investigate depth of contamination near previous SQS exceedance. Shorter core may be collected, but EPA requires full delineation of depth of contamination. EPA does not assume that native material is clean.
EPA 12	Original EWG location 33 moved to EPA 12 to investigate depth of contamination below previous CSL exceedance.
33	Original EWG Core replaced with EPA 12.
EPA 13	New core to characterize T-30 area and investigate depth of contamination near previous CSL and SQS exceedances. Shorter core may be collected, but EPA requires full delineation of depth of contamination. EPA does not assume native material is clean.
EPA 14	Investigate depth of contamination near previous SQS (127) and CSL exceedances near utility corridor.
EPA 15	New core near T-18 pier face to investigate extent of contamination near previous CSL exceedances (126 under pier and un-labeled core outside pier).
EPA 16	Pending Round 2 surface sediment results, new core to investigate contaminant concentration depth.
EPA 17	New core offshore of GATX. Could replace proposed EWG location 40

Sample	Rationale
40	Original EWG Core replaced with EPA 17.
EPA 18	Pending Round 2 surface sediment results, new core (relocated location 41) near pier face to investigate extent of contamination near previous CSL exceedance (211) (Kinder Morgan site).
50	Pending Round 2 surface sediment results, original EWG location moved into dredged area.
EPA 19	Pending Round 2 surface sediment results, contingent locations for new core.
EPA 20	Original EWG location 45 moved to investigate depth of contamination near previous creosote pier to evaluate variation in depth of contamination as move from offshore of likely source area.
44	Original EWG location moved east out of dredged area.



SRI subsurface sampling location
- Original
- Moved
- New
- Proposed geotech core with associated chemistry

Combined SMS and DMMP categories for all chemicals in subsurface sediment
- > CSL/ML, detect
- > SQS/SL and ≤ CSL/ML, detect
- > CSL/ML, non-detect
- > SQS/SL and ≤ CSL/ML, non-detect
- ≤ SQS/SL, detect
- Geochronological core

Combined SMS and DMMP categories for all chemicals in surface sediment[a]
- > CSL/ML, detect
- > SQS/SL and ≤ CSL/ML, detect
- > CSL/ML, non-detect
- > SQS/SL and ≤ CSL/ML, non-detect
- ≤ SQS/SL, detect

EW RI/FS surface sediment sampling
- Proposed Round 2 location

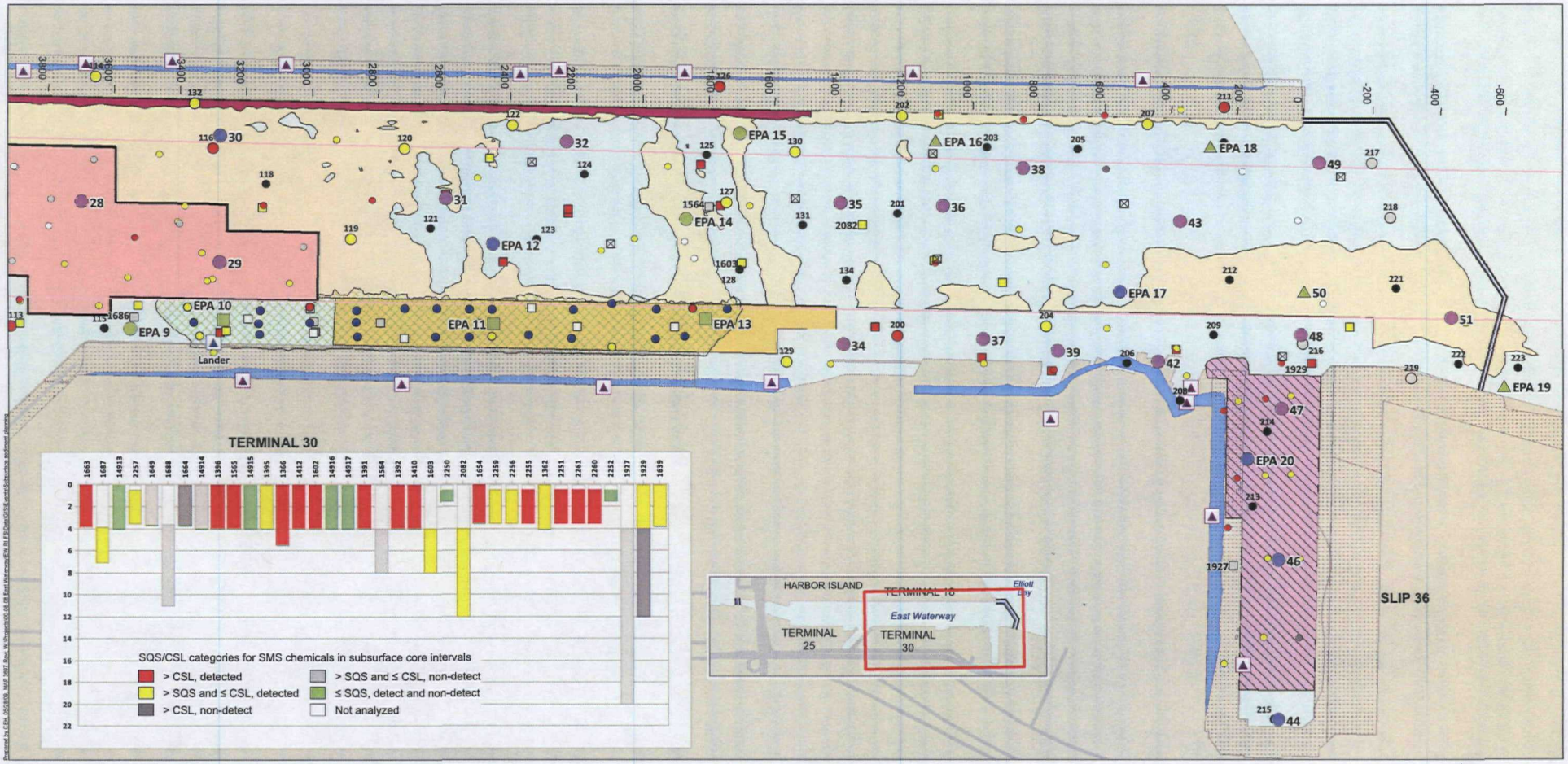
- Stage 1a (completed 2006, -51 MLLW)
- Phase 1 removal action boundary (completed 2005, -51 MLLW)
- Stage 1 (completed 2000, -51 MLLW)
- Intertidal zone

- CSO
- Storm drain
- CSO/storm drain
- Proposed East Waterway Operable Unit Boundary
- Dock/Pier
- Slip 27 Bridge
- Road
- Navigation channel

0 600
Scale in feet

Subsurface sediment sampling locations for the SRI with historical exceedances of SMS criteria and DMMP guidelines for surface and subsurface sediment - South East Waterway Study Area

[a] Round 1 sampling locations are larger and labeled. Round 1 data is preliminary and unvalidated.



SRI subsurface sampling location
- Original
- Moved
- New
- T-30 shallow core
- Evaluated with Rnd 2 data

Combined SMS and DMMP categories for all chemicals in subsurface sediment
- > CSL/ML, detect
- > SQS/SL and ≤ CSL/ML, detect
- > CSL/ML, non-detect
- > SQS/SL and ≤ CSL/ML, non-detect
- ≤ SQS/SL, detect
- Geochronological core

Combined SMS and DMMP categories for all chemicals in surface sediment*
- > CSL/ML, detect
- > SQS/SL and ≤ CSL/ML, detect
- > CSL/ML, non-detect
- > SQS/SL and ≤ CSL/ML, non-detect
- ≤ SQS/SL, detect

T-30 2009 locations
- Archived Samples
- Tier 1

EW RI/FS surface sediment sampling
- Proposed Round 2 location

- T-30 interim dredge (proposed 2008, -51 MLLW)
- Stage 1a (completed 2006, -51 MLLW)
- Coast Guard dredge, completed 2005
- Phase 1 removal action boundary (completed 2005, -51 MLLW)
- T-30 boundary (completed 2002, -51 MLLW)
- Stage 1 (completed 2000, -51 MLLW)

- Storm drain
- CSO/storm drain
- Intertidal zone
- Proposed East Waterway Operable Unit Boundary
- Dock/Pier
- Road
- Navigation channel

0 600
Scale in feet

Subsurface sediment sampling locations for the SRI with historical exceedances of SMS criteria and DMMP guidelines for surface and subsurface sediment - North East Waterway Study Area

* Round 1 sampling locations are larger and labeled. Round 1 data is preliminary and unvalidated.